Axis A

.366m
Rotation
Radius

1.02 kg.

.5m

16.97 m/s^2

9.8 m/s^2

.5m

.866m

.366m

1 m

60°

30°

60°

60°

	mass meters	height meters	gravity m/s^2	Energy joule		velocity m/s	Radius	Radial Accel m/s^2
1	1.020	0.366	9.800	3.659	potential			
2	1.020			3.659	kinetic	2.678	0.366	**19.600**

A minimum of 16.97 m/s^2 is required to maintain the pendulum at a 60° angle. However given the potential energy between 30° and 60°, converted to kinetic energy we have v=2.678m/s, spinning around axis A with a .366m radius, our radial acceleration is 19.6 m/s^2.

Inversely, adding 3.659 joules of kinetic energy to the rotation of the pendulum. The potential energy is more than the kinetic energy.
Can a rotating pendulum gain free potential energy from kinetic energy? or do we assume this device requires the sum of potential and kinetic energy to rotate and raise?